

Claims

- [c1] 1. A method of generating a helical artifact score, the method comprising:
acquiring a set of data values;
setting a subset of the set of data values to an initial value;
after setting the subset to an initial value, filtering the set of data values; and
determining a probability of artifact presence from the filtered set of data values.
- [c2] 2. The method of claim 1 further comprising generating a mask from the set of data values.
- [c3] 3. The method of claim 2 wherein the set of data values represent pixels of an image and wherein the step of generating a mask further comprises identifying a set of pixels within a range of an expected uniform material value.
- [c4] 4. The method of claim 3 wherein the range is + 40 CT numbers.
- [c5] 5. The method of claim 3 further comprising isolating a region of the set of pixels absent visual artifacts.
- [c6] 6. The method of claim 3 further comprising determining a numeric mean of the set of pixels within the range.
- [c7] 7. The method of claim 6 further comprising subtracting the mean from each data value of the set of data values.
- [c8] 8. The method of claim 3 further comprising steps of:
squaring each pixel of the set of pixels;
summing the squared pixels; and
dividing the summation by a mask pixel count.
- [c9] 9. The method of claim 8 further comprising modifying the quotient by a scalar.
- [c10] 10. The method of claim 9 further comprising determining the scalar by statistically correlating trained observers responses to a reconstructed image of the set of data values.

- [c11] 11. The method of claim 9 wherein determining a likelihood of artifact presence comprises comparing the modified quotient to an artifact scale.
- [c12] 12. The method of claim 11 wherein the artifact scale has a maximum of ten and a minimum of one.
- [c13] 13. The method of claim 1 further comprising filtering the set of data values with a two dimensional array.
- [c14] 14. The method of claim 13 wherein the filtering two dimensional array is a Hanning kernel.
- [c15] 15. The method of claim 13 wherein the filtering two dimensional array has a five by five orientation.
- [c16] 16. The method of claim 1 wherein the initial value is a whole number.
- [c17] 17. The method of claim 1 wherein the initial value is zero.
- [c18] 18. A computer-readable medium having stored thereon a computer program that, when executed by one or more computers, causes the one or more computers to:
acquire imaging data of a phantom from an external device, wherein the imaging data includes a plurality of pixels;
isolate a first set and a second set of pixels;
set one of the first set and the second set to an initial value;
thereafter, filter the imaging data;
determine a helical artifact index (HAI); and
visually display the HAI on a console.
- [c19] 19. The computer readable medium of claim 18 wherein the external device is one of a CT scanner, an MRI scanner, an x-ray scanner, a PET imaging system, and an ultrasound imaging system.
- [c20] 20. The computer readable medium of claim 18 wherein the phantom has a shape to simulate an anatomical region of a patient.
- [c21] 21. The computer readable medium of claim 20 wherein the region includes

